MARINE VHF HANDHELD TRANSCEIVER

MODEL FM-55

OPERATOR'S HANDBOOK



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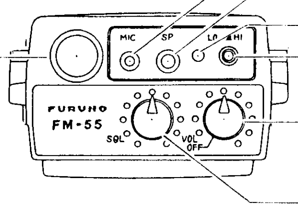
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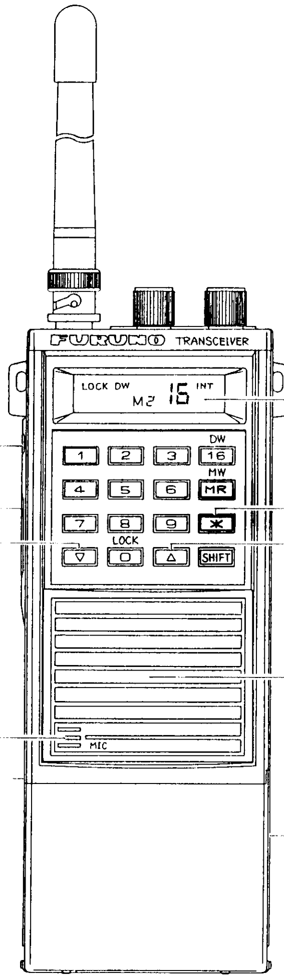
CONTROL LAYOUT

PANEL LAYOUT

(TOP PANEL)



(FRONT PANEL)



OPERATING INSTRUCTION

(*) Applicable only where authorized

1 GENERAL

1.1 Type of Transceiver

The FM-55 handheld transceiver is available in 3 versions as follows;

1) International Version:
   International channels, Dual Watch, Manual scan
2) U.S. Version:
   International channels, U.S. channels, Auto scan, Manual scan, Weather channels, Dual Watch.
3) Special Version:
   Function of International or U.S. version plus limited private channels and/or auto scan according to authorization.

1.2 Mode

The FM-55 is provided with the following channel modes:

1) Normal Channel Mode
   Any authorized channel can be selected by hitting the channel number keys or manual scan key.
2) Memory Channel Mode
   Any channel stored in the memory address can be selected by manual scan.
3) Weather Channel Mode (*)
   Any channel programmed in the weather channel address can be selected by manual scan.
4) Private Channel Mode (*)
   Any channel programmed in the private channel address can be selected by manual scan.

1.3 Charging the Battery Pack

When you first operate after purchace of this radio set, recharge the battery pack through a wall charger supplied as standard or through a quick charger which is optionally available. Normal charging time is about 15 hours with the wall charger BC-500, 60-90 minutes with the quick charger, BC-501 or BC-503.

1.4 Auto Scan (*)

Auto scan is activated by pressing **[SHIFT][△]** and the receiver automatically scans channels upward in each channel mode. In the normal channel mode the channel is automatically advanced upward every 0.2 seconds; in the memory channel mode (**[SHIFT][MR]**), only the stored channels are scanned; in the weather (*) or private (*) modes, only the weather or private channels are scanned, respectively. When the signal is received (squelch opened), scan stops, In 2 seconds after the signal is gone (squelch closed), scan automatically restarts. Auto scan is ceased by pressing **[SHIFT][△]** again or PTT switch.

NOTE: When two keys are pressed in succession, the interval should be within 2 seconds. Otherwise the radio will revert to the earlier status.

1.5 Manual Scan

You can step up or down the channels by pressing [△] or [▽] keys. If you keep the key pressed, the channel will step up or down quickly.

2 CHANNEL SELECTION

2.1 Ordinary Channel

Desired channel is selected by pressing 2 numeral keys in succession. For example: to select CH6, press **[0][6]**, and to select CH88, press **[8][8]**.

2.2 Channel 16 (International Distress and Call)

CH16 may be entered either by pressing **[1][6]** keys or **[16]** key. You should not use this channel for normal traffic other than contact to a coastal station or in emergency condition. Care should be taken to prevent inadvertent selection of Channel 16.

NOTE1: The 2nd digit should be entered within 2 seconds after the 1st digit is entered; otherwise the 1st digit entered flashes for another 2 seconds and then the FM-55 reverts to the original channel.

NOTE2: When unprogrammed channels (CH29, CH70, CH75, etc.) are selected, the entered number flashes for 2 seconds and then the receiver reverts to the original channel.

NOTE3: The FM-55 maintains receiving condition on the original channel until the entry of new channel is completed.

NOTE4: Channel selection cannot be made during transmission.

2.3 U.S. Channels (*)

If your radio is U.S. version, you can switch the FM-55 to International channels or U.S.A. channels by pressing **[*]** key. "INT" or "USA" is indicated on the LCD display accordingly. In the International version, **[*]** key turns off or on the key action beep.

3. WEATHER CHANNEL MODE(*) (U.S. version only)

10 channels are programmed in weather channel addresses 1, 2, ···, 9 and 0 in the U.S. Version.

3.1 Weather Channel

Press **[SHIFT][*]** keys, and the FM-55 becomes active to receive weather CH1. "WX" and address "1" are displayed. Press [△] or [▽] once at a time or continuously until another desired weather channel is accessed.

NOTE: Transmission is invalid on weather channels.

3.2 Return to Normal Channel Mode

To return to normal channel mode, press either **[16]** key or **[SHIFT][*]** keys. CH16 will be selected. Then select another channel by pressing the corresponding keys.

4 MEMORY CHANNEL

4.1 Write Memory Channel

4.1.1 Up to 10 most-often used channels can be stored in memory addresses for quick selection. Press **[SHIFT][MR]**, and the FM-55 is set to Memory Write mode. "MW", "M1" and the contents (CH number) of the memory address 1 are displayed on the LCD. ("--" will be displayed instead of channel number when no channel is stored.)

4.1.2 Enter the desired CH number, as described in 2.1 and 2.2. To store a weather channel (*), press **[SHIFT][*]**, and "b-" will be displayed. Within 2 seconds enter the weather channel number 1, 2, ···, 9 or 0. "WX" and the entered weather channel address will be displayed and entry is finished. To store a private channel (*), which must be preprogrammed, press **[SHIFT][▽]** and "A-" will be displayed. Enter the private channel number. To return to normal channel mode, press **[16]**.

4.1.3 Press **[△]** or **[▽]** until the desired memory address is accessed.

4.1.4 10 channels max. can be stored in memory addresses 1, 2, ···, 9 and 0.

4.1.5 To escape from memoy write mode, press **[SHIFT][MR]** and the radio will be ready for operation on the channel last memorized on memory read mode. For normal channel mode, press **[16]** then enter a desired channel number.

4.2 Read Memory

4.2.1 Press **[MR]**, and the legend "M1" with the contents of memory address 1 will be indicated on the LCD display.

NOTE: If no channel is stored in the memory address 1, the radio skips to an address where a channel has been specified.

4.2.2 Press **[△]** or **[▽]** until the desired channel is reached.

4.2.3 To escape from memory read mode, press **[16]** and CH16 is recalled on normal channel mode.

5 DUAL WATCH

5.1 Function

Dual watch facilitates monitoring CH16 once a second while listening to the selected channel. When the signal is received on CH16, the receiver locks on CH16. In 5 seconds after the signal is gone the lock is released, reinitiating the dual watch.

5.2 Other Channel

Set the desired channel in normal channel mode, memory channel mode, weather channel mode (*) or private channel mode (*).

5.3 Dual Watch

Press **[SHIFT][16]**, and dual watch is engaged. "DW" and the receiving channel is displayed.

5.4 Cease of Dual Watch

Press **[SHIFT][16]** again or PTT switch, and the other channel paired with CH16 will be selected.

6 TRANSMISSION

Talk to the microphone provided at the lefthand side of the bottom of the speaker grill, while keeping the PTT switch pressed. When an external speaker/microphone is connected, the PTT switch, microphone and speaker on the main unit are disabled and only those on the speaker/ microphone are operative.

7 KEYLOCK

Press **[SHIFT][0]**, and all keys except **[SHIFT]** key are disabled to avoid inadvertent key operation. "LOCK" is displayed on the LCD. Press **[SHIFT][0]** again to release keylock.

8 BEEP ON/OFF

Key operation is confirmed with beep sound. In the International version, the beep sound can be disabled or enabled by pressing **[*]**. For the FM-55 of U.S. version, beep sound is always engaged. Sound level is controlled with the VOLUME control.

9 PRIVATE CHANNEL MODE (*)(Special version only)

9.1 Private Mode

Press **[SHIFT][▽]**, and private CH1 is recalled. "PRV" and address "1" are displayed. Press **[△]** or **[▽]** until the desired private channel is reached.

9.2 Return to Normal Channel Mode

To return to normal channel mode, press either **[16]** key or **[SHIFT][▽]** keys. CH16 will be selected.

NOTE: Scandinavian Fish Boat channels and Pleasure Craft channels are handled as PRIVATE CHANNEL.

10 SQUELCH CONTROL

Squelch mutes audio output while the radio is receiving no signal. Rotate the squelch control clockwise until the noise is muted. Be careful: too high a setting will decrease the sensitivity and you miss desired signals.

11 VOLUME CONTROL

Adjusts the audio level. Rotate the volume control to increase audio level. This is combined with the power-off switch. When not in use, never fail to completely turn off to save battery.

12 ILLUMINATION OF LCD DISPLAY

The LCD display is illuminated for nighttime operation by pressing the LCD LIGHT switch located above the PTT button.

13 LED INDICATOR

A red LED is provided on the top control panel. When the PTT is pressed, it lights indicating that the radio is in the transmitting condition. The LED also lights on channels where transmission is prohibited. Intensity of the LED is decreased according to battery discharge. If it is dark you must prepare for recharging the battery pack.

14 HI/LO OUTPUT SWITCH

Output power is selected by pressing the push-button switch on the top panel. Projected position provides high output and pushed-in position, low output. (Note: Difference in height of the push-button switch for the 2 statuses is very small, 1mm; therefore you have to see carefully.) This switch is operative on any channel other than listed below:

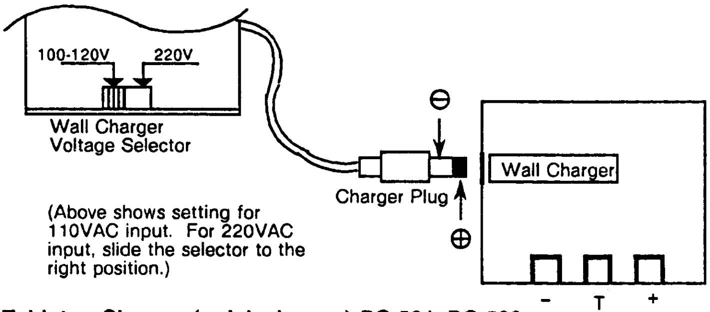
International Version:
CH15, CH17 and CH77 (always LOW output)
U.S. Version:
CH13, CH17, CH77 (always LOW output) and CH15 (RECEIVE only)

15 HOW TO CHARGE

Battery Charger (wall charger) BC-500

Set 110/220V select switch at 110V position for AC input of 100-120V, or at 220V position for AC input of 220-240V. Connect the DC plug to the jack on the battery pack. Charging time is about 15 hours. You can charge the battery pack alone or complete with the main unit. (Transceiver circuitry is electrically disconnected from the battery pack and not usable when the charger plug is inserted.)

CAUTION: If the charger becomes excessively hot, remove it from the mains supply and consult with a dealer. The BC-500 is a charger exclusive for FURUNO handheld transceiver FM-55. (open terminal voltage: 16.5V typical)



Tabletop Charger (quick charger) BC-501, BC-503

Set 110/220V select switch at 110V position for AC input of 100-120V, or at 220V posiion for AC input of 220-240V. Drop the main unit with the battery pack into the slot of BC-501 or into any slot of BC-503 . Full charge will be attained in 60-90 minutes. The charger will automatically turn to trickle charge after the quick charge.

CAUTION1: Shock or ambient temperature outside 10-40°C will change status from "quick" to "trickle" before full charge is reached. Put off power and reinsert the radios. Avoid use at a room temperature above 40°C or below 10°C.

CAUTION2: For security purpose, do not leave the FM-55 or its battery pack in the charger more than necessary.

NOTE: Beware of AC supply. Transceiver is usable during charging with a tabletop charger. If TRICKLE or QUICK lamp is not lighted, the charging contacts on the bottom of the battery pack are not in contact with the charger. Adjust the positioning of the pack back and forth, or left and right. The FM-55 can only be charged with one of the BC-500, BC-501 or BC-503.

SPECIFICATIONS OF FM-55

GENERAL

1. Frequency Range	TX: 156.000 to 158.525 MHz RX: 156.000 to 163.275 MHz
2. Channel Spacing	25 kHz
3. Freuqency Stability	1.5 kHz
4. Class of Emission	Frequency modulation with a preemphasis of 6 dB/octave (phase modulation)
5. Antenna	Helical whip (BNC connector provided for external 50 ohm antenna)
6. Dimensions & Weight	65 (W)×190 (H)×44(D), 650g (w/BP-512 or BP-807) 65 (W)×170 (H)×44(D), 600g (w/BP-509 or BP-507) * *Dimensions exclude projections.*

TRANSMITTER

1. RF Output Power	5, 3, 2 or 1W subject to authority approval. Reducible to below 1W for 5-2W versions, and about 0.5W for 1W version

RECEIVER

1. AF Output Power	0.5W (9.6/12V battery) 0.3W (7.2V battery)
2. Sensitivity	SINAD 12dB: 0.32µV (-10dBµ) SINAD 20dB: 0.50µV (-6dBµ)

EQUIPMENT LIST

(Standard)

1. Main Unit
2. Battery Pack BP-512, BP-509 or BP-507 with 450mA NiCd, or BP-807 with 800mA NiCd
3. Wall Charger BC-500 for 110/220VAC
4. Helical Whip Antenna
5. Earphone
6. Vinyl Case
7. Hand Strap
8. Belt Clip

(Optional)

1. Tabletop Quick Charger BC-501 for one radio, BC-503 for 3 radios
2. External Speaker/Microphone
3. Hard Case (Holster type)
4. Shoulder Belt

MARINE VHF CHANNEL FREQUENCIES (INTERNATIONAL VERSION)

Channel	Ship Transmit	Ship Receive	Type of Operation
01	156.050	160.650	Public Correspondence, Port Operation
02	156.100	160.700	Public Correspondence, Port Operation
03	156.150	160.750	Public Correspondence, Port Operation
04	156.200	160.800	Public Correspondence, Port Operation
05	156.250	160.850	Public Correspondence, Port Operation
06	156.300	156.300	Safety
07	156.350	156.950	Public Correspondence, Port Operation
08	156.400	156.400	Intership
09	156.450	156.450	Port Operation
10	156.500	156.500	Port Operation
11	156.550	156.550	Port Operation
12	156.600	156.600	Port Operation
13	156.650	156.650	Bridge-to-bridge, Navigational
14	156.700	156.700	Port Operation
15	156.750	156.750	Coast-to-ship, 1W
16	156.800	156.800	Distress, Safety and Calling
17	156.850	156.850	State-controlled, Ship-to-coast, 1W
18	156.900	161.500	Port Opeartion
19	156.950	161.550	Port Operation
20	157.000	161.600	Port Operation
21	157.050	161.650	Port Operation
22	157.100	161.700	Port Operation
23	157.150	161.750	Public Correspondence
24	157.200	161.800	Public Correspondence
25	157.250	161.850	Public Correspondence
26	157.300	161.900	Public Correspondence
27	157.350	161.950	Public Correspondence
28	157.400	162.000	Public Correspondence
60	156.025	160.625	Public Correspondence, Port Operation
61	156.075	160.675	Public Correspondence, Port Operation
62	156.125	160.725	Public Correspondence, Port Operation
63	156.175	160.775	Public Correspondence, Port Operation
64	156.225	160.825	Public Correspondence, Port Operation
65	156.275	160.875	Public Correspondence, Port Operation
66	156.325	160.925	Public Correspondence, Port Operation
67	156.375	156.375	Port Operation
68	156.425	156.425	Port Operation
69	156.475	156.475	Port Operation
71	156.575	156.575	Intership, Port Operation
72	156.625	156.625	Intership
73	156.675	156.675	Port Operation
74	156.725	156.725	Port Operation
77	156.875	156.875	Intership, 1W
78	156.925	161.525	Port Operation
79	156.975	161.575	Port Operation
80	157.025	161.625	Port Operation
81	157.075	161.675	Port Operation
82	157.125	161.725	Port Operation, Public Correspondence
83	157.175	161.775	Public Correspondence
84	157.225	161.825	Port Operation, Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	162.025	Public Correspondence

MARINE VHF CHANNEL FREQUENCIES (USA VERSION)

Channel	Ship Transmit	Ship Receive	Type of Operation
01	156.050	156.050	Port Operation, Commercial
02	156.100	156.100	
03	156.150	156.150	
04	156.200	156.200	
05	156.250	156.250	
06	156.300	156.300	Intership Safety
07	156.350	156.350	Commercial
08	156.400	156.400	Commercial (Intership)
09	156.450	156.450	Commercial and Non-commercial
10	156.500	156.500	Commercial
11	156.550	156.550	Commercial
12	156.600	156.600	Port Operation
13	156.650	156.650	Bridge-to-bridge, Navigational, 1W
14	156.700	156.700	Port Operation
15		156.750	Environmental (Receive Only)
16	156.800	156.800	Distress, Safety and Calling
17	156.850	156.850	State-controlled, Ship-to-coast, 1W
18	156.900	156.900	Commercial
19	156.950	156.950	Commercial
20	157.000	161.600	Port Operation
21	157.050	157.050	US Government
22	157.100	157.100	Coast Guard Liaision (Port Safety)
23	157.150	157.150	US Government
24	157.200	161.800	Public Correspondence
25	157.250	161.850	Public Correspondence
26	157.300	161.900	Public Correspondence
27	157.350	161.950	Public Correspondence
28	157.400	162.000	Public Correspondence
60	156.025	160.625	
61	156.075	160.675	
62	156.125	160.725	
63	156.175	156.175	Vessel Traffic Service (USCG)
64	156.225	160.825	
65	156.275	156.275	Port Operation
66	156.325	156.325	Port Operation
67	156.375	156.375	Commercial (Intership)
68	156.425	156.425	Non-commercial
69	156.475	156.475	Non-commercial
71	156.575	156.575	Non-commercial
72	156.625	156.625	Non-commercial (Intership)
73	156.675	156.675	Port Operation
74	156.725	156.725	Port Operation
77	156.875	156.875	Port Operation (Intership), 1W
78	156.925	156.925	Non-commercial
79	156.975	156.975	Commercial
80	157.025	157.025	Commercial
81	157.075	157.075	US Government
82	157.125	157.125	US Government
83	157.175	157.175	US Govenment
84	157.225	161.825	Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	157.425	Commercial (Intership)
WX1		162.550	Weather (Receive Only)
WX2		162.400	Weather (Receive Only)
WX3		162.475	Weather (Receive Only)
WX4		162.425	Weather (Receive Only)
WX5		162.450	Weather (Receive Only)
WX6		162.500	Weather (Receive Only)
WX7		162.525	Weather (Receive Only)
WX8		161.650	Weather (Receive Only)
WX9		161.775	Weather (Receive Only)
WX0		163.275	Weather (Receive Only)